

Chapter 2: Proposed Action and Other Alternatives

This chapter describes the Proposed Action (Section 2.1) and also describes an alternative of taking no action (Section 2.2, No Action Alternative). Several other alternatives were considered but eliminated from detailed study (Section 2.3) because they are infeasible or fail to meet the purposes and need for the action described in Chapter 1. The alternatives are compared in Section 2.4.

2.1 Proposed Action

The Proposed Action is to modify and modernize two existing hatchery facilities and construct three auxiliary hatchery facilities to aid native spring/summer chinook conservation and recovery in Northeast Oregon (see map, Figure 2-1).

The five sites and facilities involved are:

- Lookingglass Hatchery – modifications are proposed to better accommodate the Catherine Creek and Upper Grande Ronde (includes Lookingglass Creek) components of the hatchery fish production program and transfer other stock responsibilities to facilities on **natal** streams. Lookingglass Hatchery was designed and built for production of two stocks of fish. The current program of hatchery production requires that Lookingglass Hatchery accommodate eight program components and five different fish stocks with lower density rearing objectives.
- Lostine Adult Collection Facility – a new facility is proposed for collecting adult spring/summer chinook during higher flows for spawning at the Lostine River Hatchery. Currently, fisheries managers use a portable **picket weir** on the Lostine River near its confluence with the Wallowa River to collect adult spring/summer chinook for hatchery spawning. That existing weir cannot be operated during the higher spring flows typical during chinook migration.
- Lostine River Hatchery – a new facility is proposed to accommodate the Lostine component of the hatchery production program by incubating and rearing chinook near their natal waters. The new facility would also accommodate incubation and early to final stages of rearing of Imnaha stock.
- Imnaha Final Rearing Facility – a new facility is proposed to provide final (fall to early spring) rearing for year-old chinook in their natal waters prior to final acclimation and release at the Imnaha Satellite Facility.
- Imnaha Satellite Facility – modifications are proposed to the existing adult collection and acclimation facility to allow collection of broodstock over a greater range of spring flows and holding, spawning, and incubation prior to transport.

As recommended in the Master Plan, facilities would be designed and constructed to meet the low density rearing criteria of Natural Rearing and Enhancement System (**NATURES**) to the extent feasible (Ashe et al. 2000). Instream structures would meet applicable NOAA Fisheries and USFWS design requirements. Construction would be staged to accommodate existing project operations and reduce impacts on fish production at each facility.

Instream work would be performed in compliance with applicable regulations and permits. Any instream work would occur behind temporary **cofferdams** or other water diversions appropriately placed to route water around work areas. Portable pumps would be used to help keep work areas dry. Pump discharge would be routed through settling basins prior to discharge back into any rivers. Instream work would only occur during

ODFW's **instream work window**, normally July 1 to July 31 for the Lostine River and July 15 to August 15 for the Imnaha River, or as otherwise specified by the regulatory agency(s).

Facility design and construction would incorporate best management practices such as erosion control, waste management, dust control, weed management, fire prevention, and work hour and noise considerations; would comply with the federal Clean Water Act's (CWA) National Pollutant Discharge Elimination System (NPDES) requirements; and would incorporate sensitive site design measures such as retaining riparian vegetation, landscaping with native plants, erecting buildings reflective of local character, and shielding facility lighting. The project would incorporate other environmental requirements or mitigation measures determined to be mandatory during consultation for applicable permits. See Table 4-1 for environmental permits and approvals required at each site.

The following sections summarize the facilities proposed at each site and their functions. More details on specific facility elements are in the Montgomery Watson Harza Preliminary Design documents and Technical Memoranda, which are incorporated by reference into this EIS and available on request from BPA.

2.1.1 Grande Ronde Facilities

2.1.1.1 Lookingglass Hatchery

The proposed modifications are within the existing 11-acre hatchery compound, which is operated and maintained year round. Most of the modifications involve additions to existing facilities or internal changes to existing structures (shown in bold on Figure 2-2). See Figure 3.9-1 for site photos. Modifications to Lookingglass Hatchery would involve:

- Building a six-bay garage to securely store vehicles and other equipment out of the weather (A).
- Adding incubation trays to improve fish health, segregation, monitoring and evaluation requirements of the hatchery fish production program (B).
- Increasing the size of the rearing troughs to reduce rearing densities (B).
- Modifying **raceways** (e.g. installing bird netting) to reduce **predation** on hatchery fish (C).
- Adding three new raceways to meet NATURES rearing densities (C).
- Insulating the fish production building, removing holding tanks, replacing a gravel floor with concrete and installing roll-up doors to increase storage space for hatchery supplies and vehicles (D).
- Upgrading the electrical power supply to meet building code requirements and to provide adequate, reliable power to operate the facility year round, thus reducing operational risks associated with power outages (E).

Water Requirements at Lookingglass Hatchery — No additional water withdrawals are proposed beyond those already authorized.

Construction Activities Proposed at Lookingglass Hatchery — Minor excavation work would be necessary to place the three new raceways below grade. Excavated soil and rock would be deposited

in previously disturbed areas near the existing residences. Less than one-half acre of land would be disturbed during construction, and no in-stream work would be necessary.

2.1.1.2 Lostine Adult Collection Facility

Currently, fisheries managers use a portable picket weir site on the Lostine River near its confluence with the Wallowa River to collect adult spring/summer chinook for hatchery spawning. The portable weir cannot be safely or effectively operated during higher river flows (greater than 800 cubic feet per second [**cfs**]) typical during early spring to July when many adult chinook are migrating upstream, which restricts the number and genetic diversity of adults that can be collected to meet hatchery production goals.

A new adult spring/summer chinook collection facility is proposed approximately one mile upstream (south) of the town of Lostine (private land purchase or easement). This site is located downstream of current spring/summer chinook spawning areas, and the new facility (Figures 2-3 and 3.9-2) would be designed to safely and effectively allow capture of migrating adult chinook during typical higher flows (800 to 1200 cfs). The existing portable weir may continue to be used during periods of lower flows.

The new adult collection facility would be located on the west bank, across from an existing fish screen/fish ladder/irrigation diversion complex. The new facility would involve:

- Decommissioning the existing, deteriorating concrete fish ladder. The highest sill would be entirely removed; the other sills would be partially removed to the extent needed, and allowed to fill with stream gravels.
- Constructing a new concrete fish ladder and installing a modern fish-friendly weir structure (termed a **hydraulic velocity barrier**) for adult fish passage and chinook collection. The new structure would meet NOAA Fisheries criteria and greatly improve fish trapping and passage over a range of river flow conditions.
- Protecting the river's west bank from damage during high flow conditions by constructing a soil and rock levee, about three to five feet high, extending about 300 feet upstream of the exit of the fish ladder. Existing vegetation would be removed for levee construction.
- Protecting/stabilizing the river channel by placing riprap or a concrete retaining wall along both banks about 100 feet upstream of the new facility.
- Clearing, grading, and graveling an area to provide access for loading and transporting fish.
- Replacing the log bridge with a steel panel bridge and placing the bridge abutments outside the **ordinary high water** level.
- Bringing new electrical service across the bridge and installing a transformer to provide power during collection operations for the hoist and, possibly, lights.
- Constructing a temporary construction access road from the Lostine River Road to the Lostine River, just upstream of the existing irrigation diversion.

Water Requirements at Lostine Adult Collection Facility — This facility would not require water withdrawals from the Lostine River or from groundwater wells.

Construction Activities Proposed at Lostine Adult Collection Facility — Instream work would be involved with most activities, although most would be contained within about ¼ acre-sized area. About two acres would be cleared and graded adjacent to (above) the west bank for construction staging and permanent access to the facility. Temporarily disturbed construction areas would be revegetated with native species early the following growing season for the best plant growth and survival.

2.1.1.3 Lostine River Hatchery

Currently, Lostine River spring/summer chinook adults are spawned at Lookingglass Hatchery. Incubation occurs at two hatcheries on the Columbia River: Oxbow Hatchery (near Cascade Locks, Oregon, about 250 miles west of Lookingglass) and Irrigon Hatchery (downstream of McNary Dam, about 100 miles away). Fish are reared at Irrigon and Lookingglass hatcheries. Smolts are then trucked to a temporary facility on the Lostine River for acclimation for a couple weeks prior to release. The temporary facility consists of two aboveground troughs, a portable pump and piping. This temporary facility does not provide sufficient rearing capacity, or acceptable low-density rearing conditions.

The proposed Lostine River Hatchery would be a full-scale, multi-function facility, with permanent staff and on-site housing, designed to hold Lostine River chinook during spawning and incubation through final rearing and release into the wild. Along with the proposed adult collection facility downstream, this hatchery would have all the elements needed to successfully support the Lostine River spring/summer chinook component of the hatchery fish production program (Figures 2-4 and 3.9-3, photos 9 and 10).

The Lostine River Hatchery would also hold the entire Imnaha River spring/summer chinook program from incubation to final rearing. The first couple of years would serve as a trial period, with only one-half of the Imnaha fish reared at the Lostine River Hatchery. The remainder would be reared at Lookingglass Hatchery. Adult holding facilities would be designed to hold only the Lostine River broodstock.

The proposed Lostine River Hatchery would be located on a six-acre site (private land easement and/or purchase) about five miles upstream (south) of the proposed Lostine Adult Collection Facility and would involve:

- Installing a water supply intake (Figures 2-5 and 3.9-3, photos 11 and 12) about one-half mile upstream of the proposed hatchery, just above where the Lostine River Road (County Road 551) crosses the Lostine River. The intake would include a fish screen and trash rack meeting current NOAA Fisheries criteria for such structures, and would require: installing an **Obermeyer gate** to raise the surface water elevation to provide sufficient flow to the intake; and constructing a pool and weir fish ladder to provide upstream and downstream fish passage at the intake.
- Building a gravel access road and parking area for permanent access and temporary construction staging.
- Burying a 24-inch pipeline from the intake to the hatchery site along the Lostine River Road and Granger Road, the existing access to the hatchery site.
- Installing 12-inch pipelines from three existing groundwater supply wells to provide required **pathogen-free** water for egg incubation and **smolt** rearing. Small buildings would be placed at each well site to protect the wellhead, pumps, and other equipment. These wells would also provide drinking water to staff residences.

- Building a spawning room, including holding ponds and isolation tanks.
- Constructing a building for egg incubation and early rearing of both Lostine and Imnaha smolts and a laboratory, each complete with necessary apparatus (utilities, supplies, chillers, heaters, drains, vents etc).
- Constructing eight smolt final rearing raceways for holding Lostine and Imnaha stocks.
- Installing a water overflow system from the raceways. Flow would be directed to the hatchery outfall pipeline, **volitional** release pipeline, hatchery drain, or effluent return pump station.
- Installing a pump station and 18-inch pipeline to return hatchery water back upstream to the fish ladder at the intake. This water, primarily river water with some ground water, would restore flows in the Lostine River and help attract fish to the ladder for moving upstream and downstream.
- Constructing an operations building with office space, bunkhouse for temporary and seasonal personnel, shop, electrical room, generator room, garage and outdoor parking space for three vehicles.
- Constructing a small single family residence and remodeling an existing single family residence for permanent hatchery personnel.
- Building a basin for settling waste from water released when smolt raceways are cleaned. A sump pump would be installed in the cleaning basin to drain it so that the waste could be periodically removed and trucked to an appropriate off-site disposal facility.
- Constructing a concrete outfall downstream of the hatchery. Water from the hatchery's final rearing raceways and cleaning basin would be conveyed via a 24-inch pipe and released into the river through the partially submerged outfall. Smolts would also be released via the pipe and outfall. The outfall's small valve opening and removable bar grate would prevent adult fish from entering the pipe.
- Installing a new septic system to serve the residences, operations building and the incubation and early rearing facilities.
- Upgrading to a 3-phase electrical power supply to the hatchery, conveyed along about three miles of PacifiCorp's existing easement. A transformer would be installed at the site's main operations building. A generator would provide emergency backup power.
- Paving Granger Road from the Lostine River Road to the hatchery when hatchery construction is completed.
- Removing the existing temporary acclimation facility when the new facility is operational.

Water Requirements at Lostine River Hatchery — Lostine River flows vary widely, with average flows ranging from 50 cfs in the winter to 800 cfs in June during the snowmelt. With average river conditions, no more than about 25 percent of the flow would be needed to support the proposed hatchery. A maximum of about 15.3 cfs would be needed in mid-September to meet NATURES preferred criteria for all fish at the hatchery. Three new groundwater wells would provide up to 1,200 gallons per minute (**gpm**) to the facility.

Construction Activities Proposed at Lostine River Hatchery — The Lostine River Hatchery would require clearing about five acres of undeveloped upland currently used as horse pasture and adjacent woodlands. Trees would be protected unless they pose a safety hazard or lie along the outfall pipeline corridor. Trees that would be removed may be used as in-stream structures for fish habitat enhancement in the watershed. The site would be graded and filled with 5,000 to 10,000 cubic yards of rock from a nearby quarry to level the site and to provide some flood protection.

Site clearing, foundations and exteriors for the main buildings would be built first to allow other work to continue indoors during the winter months. Severe weather conditions may occasionally stop outdoor work activities. Construction of the raceways, incubation and spawning building, water cleaning basin, and related structures and piping would occur during the next construction season.

Because the hatchery would be located in a subdivision of rural cabins, special measures would be taken to avoid neighborhood disturbance from unreasonable noise, dust, light, traffic, and other possible construction-related annoyances. Though normal work hours would be 8 a.m. to 5 p.m. five days a week, 12-hour work days six days a week would be needed during crucial instream work windows (normally July 1 to 31) to accomplish necessary work. Two in-stream work seasons would likely be needed to complete construction of the hatchery facilities. The first instream work window would be used to construct the river water intake and fish ladder, which would include removal of a portion of the riverbank to place the intake. The second instream work window would be used to install the Obermeyer gate and pipeline at the intake and the hatchery outfall downstream. Upstream and downstream fish passage would be maintained during the instream work. Less than one-half acre of in-stream work area would be involved.

2.1.2 Imnaha Facilities

2.1.2.1 Imnaha Final Rearing Facility

Final rearing of Imnaha spring/summer chinook smolts currently occurs at Lookingglass Hatchery. No final rearing facilities exist for the Imnaha stock in their natal stream. Acclimation occurs at the Imnaha Satellite Facility. The new facility would allow rearing and prolonged acclimation of smolts to the Imnaha River.

The proposed Imnaha Final Rearing Facility would be located on about 10 acres of private land (via easement) about five miles upstream (south) of the town of Imnaha (Figures 2-6 and 3.9-4). It would involve:

- Installing a water intake structure and debris screen in the Imnaha River about 1,200 feet upstream of the proposed facility. A fish screen and fish bypass pipeline would be located upland, about 600 feet from the intake.
- Laying a 36-inch pipeline from the screened surface water supply, via the fish screen and a headbox, that routes flows to the raceways. A 30-inch overflow pipe would carry excess water back to the Imnaha River to prevent overtopping of the headbox.
- Constructing ten concrete final rearing raceways (long, rectangular outdoor ponds) served by a portable **formalin** distribution system that would treat fish during the final rearing process.

- Excavating a basin to settle the waste from water after it is removed from the raceways. Clean water would overflow near the top of the basin and be routed to the outfall.
- Constructing a concrete outfall immediately downstream of the hatchery. The outfall would return water serving the facility to the Imnaha River. The riverbank adjacent to the outfall would be covered with large rock (riprap) to prevent erosion. The outlet would have bars across it to prevent migrating and resident trout from entering the pipe.
- Erecting a building for equipment storage and maintenance, supply storage, office, lavatory, utilities, and a two-bay garage.
- Building a single-family residence for permanent on-site personnel and a bunkhouse for up to six temporary employees. These buildings would be one-story, wood-frame structures with metal roofs. Employees living in these facilities would work on-site and at the Imnaha Satellite Facility. The residence, bunkhouse and maintenance building would be supplied with drinking water from existing wells.
- Installing a new septic system.
- Laying pipes to route groundwater from the existing “orchard” and “house pasture” wells to the intake and fish screen, as needed, to prevent icing during extended cold periods.
- Moving the existing bridge across the Imnaha River upstream about 200 feet and placing it on concrete abutments for permanent access to the facility (Figure 2-7). The bridge would also be lengthened to improve river flow past the bridge. A turning lane on the Upper Imnaha River Road (County Road 727) would give fish hauling trucks and other traffic safer passage near the bridge. Paving the access road to the facility would protect the river and facility from road-based sedimentation.
- Bringing a powerline down the slope and across the bridge from PacifiCorp’s existing line that runs just below the ridge on the opposite side of the Imnaha River Road. Approximately 300 feet of new powerline and associated poles would be installed.
- Fencing the perimeter of the site for security and to deter livestock and fish predators.

Water Requirements at Imnaha Final Rearing Facility — The project would divert up to 32.6 cfs from the Imnaha River, of which 22 cfs would be screened and routed to the final rearing facility, with the remaining flow used to return fish (that entered the intake) back to the river. Existing groundwater wells (known as the “house pasture well” and the “orchard well”) would provide water for residential use and for de-icing the intake and fish screen as needed. Water from the house pasture well would be conveyed north along the Upper Imnaha River Road and across the bridge to the headbox. Water from the orchard well would also be routed to the headbox.

Construction Activities Proposed at Imnaha Final Rearing Facility — The Imnaha Final Rearing Facility would require clearing about six acres of undeveloped land currently used as pasture for livestock. Lower portions of the site would be raised with rock fill to protect it from flooding. Five different places of in-stream work (intake, outfall, bridge removal, bridge replacement, and fish bypass) would involve a total of about one-half acre of in-stream work area. Existing native trees and large shrubs along the river would be retained to screen the facility from the Upper Imnaha River Road. Construction activities at the site would occur throughout the calendar year because of the milder winter conditions found in the Imnaha River canyon.

2.1.2.2 Imnaha Satellite Facility

The existing Imnaha Satellite Facility is located about 29 miles upstream (south) of the town of Imnaha on about six acres of land administered by the Forest Service. The facility, a satellite of Lookingglass Hatchery, is operated seasonally under a special use permit from the Forest Service. The USFWS owns the facility and holds the special use permit. The facility, operated by ODFW, is an adult chinook holding and smolt release facility. The facility has deficiencies that limit its effectiveness to safely and efficiently collect and hold adult fish by contemporary standards.

The proposed facility improvements are located within the existing hatchery compound (Figures 2-8 and 3.9-5). These improvements, along with the Imnaha Final Rearing Facility and the Lostine River Hatchery, would greatly reduce the demands of the Imnaha spring/summer chinook program on Lookingglass Hatchery. The Imnaha and Lostine facilities would be used to collect, hold, and **spawn** adult broodstock and to provide incubation and acclimation before release. Lookingglass Hatchery would also hold some Imnaha adults as a precaution to spread the risk of failure if the new Imnaha or Lostine facilities should have difficulties.

The current facility is deficient in adult collection and holding, and does not allow incubation or acclimation within NATURES operational criteria. Improving the facilities would involve:

- Installing a new **Chiwawa weir** across the river that operates safely and effectively at higher river flows, replacing the existing picket weir.
- Building a more effective fish ladder (designed to NOAA Fisheries criteria), alongside the existing ladder, which would be used as an auxiliary water supply to attract fish to the fish ladder entrance.
- Enlarging the trapping and holding area.
- Installing an additional water intake structure in the river, alongside the existing intake, to provide higher flows for acclimation and to improve adult attraction to the fish ladder. In addition to the second intake and new 24-inch conveyance pipeline, related improvements would include a better debris and fish screen on the existing intake and a sediment basin where sand and silt would settle out before the water flows into the acclimation ponds.
- Developing an on-site well capable of supplying disease-free water for incubation.
- Enlarging the existing juvenile chinook acclimation pond to provide more space for acclimating fish at preferred densities.
- Adding an egg incubation room to the existing spawning shed.
- Bringing a powerline about six miles from PacifiCorp's substation to the north. The powerline would be buried under the Upper Imnaha River Road (Forest Service Road 3955).

Water Requirements at Imnaha Satellite Facility — An additional 13 cfs would be diverted from the Imnaha River for acclimation of smolts. Depending on the season, the total requirement for facility operations would be about 26 cfs. Up to 100 gpm of ground water would be pumped from a new well for incubation and adult spawning.

Construction Activities Proposed at Imnaha Satellite Facility — Proposed improvements, including instream work to replace the weir and modify the intake, would involve less than one-half acre, much of which has been altered previously by development. About 650 feet of new pipeline would be buried next to the existing pipeline under the gravel road.

Due to the remote location and harsh winter conditions, construction would likely occur only between April and early November. Construction would be scheduled to avoid disruption of existing hatchery operations when possible. However, during installation of the new Chiwawa weir and modifications to the fish ladder migrating fish would be temporarily collected below the site for spawning or passage/release above the site.

2.2 No Action Alternative

NEPA requires consideration of a No Action Alternative to provide an environmental baseline against which consequences of the Proposed Action (and any alternatives) can be compared. “No Action” in this EIS means the current activities would continue with no changes to the function, type, or number of available facilities. However, the existing facilities would deteriorate over time due to age and use.

Existing facilities would continue to be relied upon to support the conservation and recovery program for the spring/summer chinook in Northeast Oregon. Current disease risks and other problems, insufficiencies and limitations associated with the existing situation would likely stay the same or possibly improve slightly with changes in practices and minor upgrades over time. Lostine and Imnaha chinook stocks would continue to be incubated and reared away from their natal waters, and acclimated at the facility on the Lostine River and the Imnaha Satellite Facility.

The No Action Alternative means production of spring/summer chinook at Lookingglass Hatchery would continue below levels desired for conservation and recovery goals, and at elevated risk of a complete loss of a year’s production of one or more stocks of fish in the event of a system failure or operational accident.

2.3 Alternatives Eliminated from Detailed Study

The following alternatives were considered in the planning process for the proposed action, but have been eliminated from detailed study in this EIS because they are either physically or economically infeasible, or did not meet the purposes or need for taking action presented in Chapter 1 of this EIS. See Chapter 3 of the Master Plan (incorporated by reference in this EIS, available upon request from BPA) for a complete description of the following alternatives and the screening process used to eliminate them from further study.

2.3.1 Modify Lookingglass Hatchery and Use, Add or Modify No Other Facilities

This alternative sought to modify Lookingglass Hatchery to the extent necessary to meet full production goals for all fish stocks managed for mitigation, conservation, and recovery goals in Northeast Oregon. However, this alternative would not provide sufficient space or water supply to substantially improve the fish production program. Chapter 3.3.1 of the Master Plan contains more detailed information about this alternative.

2.3.2 Use or Modify Existing Facilities Elsewhere in the Columbia Basin to Assist with Lookingglass Hatchery Production

Co-managers considered using other existing facilities throughout the Columbia Basin to assist Lookingglass Hatchery in meeting the fish production program goals. Though the preferred production strategy requires rearing fish in their natal watershed, all anadromous fish hatcheries in the Columbia Basin and one on the Oregon coast were evaluated. Tables 3-3 and 3-4 of the Master Plan describe the 12 facilities reviewed.

The facilities were also reviewed in the NEOH Final Siting Report (Montgomery Watson 1995a). The evaluation resulted in the elimination of each of these facilities for one or more of the following reasons: restricted expansion potential and/or existing facilities near capacity; inadequate water supply to accommodate expansion; poor water quality or undesirable temperature regimes; excessive distance to and from the Grande Ronde and Imnaha subbasins for safely transporting eggs and smolts; and/or did not meet goal of maximizing production within natal waters. Chapter 3.3.2 of the Master Plan contains more detailed information about this alternative.

2.3.3 Put New Facilities at Other Sites in Northeast Oregon to Assist Lookingglass Hatchery Production

Co-managers studied many sites in the Imnaha and Grande Ronde subbasins for potential new facilities (Table 2-1). Chapter 3.3.3 of the Master Plan describes the sites, screening criteria and the evaluation process used to eliminate them from detailed study in this EIS. Sites were evaluated on their potential to accommodate a main hatchery facility or several smaller, integrated facilities to serve one or both basins.

This investigation found that only the Imnaha Final Rearing Facility site (Wayne Marks Ranch, site 10) and the Lostine River Hatchery Site (adjacent to the ODFW Bighorn sheep range, site 21), both of which are included in the Proposed Action, (EIS Section 2.1) had adequate water flow, supply and temperature; space; and power supply near historic spawning areas to efficiently accommodate certain critical facilities. All other sites have therefore been eliminated from further consideration.

2.4 Comparison of Alternatives

Table 2-2 compares the Proposed Action and the No Action Alternative to the stated purposes for taking action.

Table 2-3 compares the facilities associated with the Proposed Action and the No Action Alternative.

Table 2-4 summarizes the anticipated environmental consequences of the Proposed Action and the No Action Alternative.

Table 2-1. Sites Investigated.

Imnaha Subbasin Sites	Grande Ronde Subbasin Sites	
1. Indian Crossing 2. Gumboot Creek (existing facility) 3. Grouse Creek-Imnaha confluence 4. Big Sheep-Lick Creek confluence 5. Big Sheep Creek 6. Big Sheep-Little Sheep confluence 7. Little Sheep Creek 8. Gene Marr Ranch 9. Horse Creek 10. Wayne Marks Ranch	1. Catherine Creek N&S Fork confluence 2. Catherine-Milk Creek confluence 3. Catherine Creek at Union 4. Vey Meadows 5. Sheep Creek 6. Beaver Creek 7. Sanderson Springs-Mill Creek 8. Lower Willow Creek near Elgin 9. Indian Creek near Elgin 10. Grande Ronde near Elgin 11. Lookingglass Hatchery 12. Wildcat Creek Area 13. Fish Ladder 14. Flora Grade	15. Cottonwood Creek 16. Wallowa Lake 17. Hayes Fork-Prairie Creek 18. Wallowa Hatchery 19. Big Canyon Creek 20. Minam River – Wallowa River confluence 21. ODFW Bighorn sheep range 22. Strathearn Ranch 23. Lostine Dam 24. Clearwater Ditch Diversion – Lostine River 25. Davis Dam-Catherine Creek 26. Minam above Wallowa River 27. Wallowa River below Minam confluence 28. Wenaha River above Troy
Source: Montgomery Watson 1995a.		

Table 2-2. Comparison of Proposed Action and No Action Alternative to the Stated Purposes of Taking Action.

Purposes of Taking Action	Proposed Action	No Action Alternative
Provide adequate, contemporary hatchery facilities in the Grande Ronde and Imnaha subbasins to help in the conservation and recovery of ESA-listed native chinook and further the implementation of the LSRCP hatchery fish production program.	Would meet this purpose to the greatest extent. Implementation of the full program would provide facilities adequate to support conservation and recovery of Grande Ronde and Imnaha spring/summer chinook.	Would only provide facilities to implement partial program elements. Existing facilities are currently undersized and inadequate for the current programs.
Coordinate the operation of Lookingglass Hatchery and related LSRCP hatchery facilities with the Fish and Wildlife Program of the NPCC, thereby aiding BPA's efforts to mitigate and recover fish affected by FCRPS.	Would meet this purpose to the greatest extent. Modifications proposed to Lookingglass Hatchery would better accommodate the Catherine Creek and Upper Grande Ronde (includes Lookingglass Creek) components of the hatchery fish production program and transfer other stock responsibilities to additional facilities on natal streams for full implementation of the LSRCP.	Would not meet this purpose. Lookingglass Hatchery would continue to be relied upon, despite a review that found it could not meet program goals even with substantial modifications. The No Action Alternative could also result in a system failure at Lookingglass Hatchery and complete loss of a year's production of one or more of the stocks currently reared there.
Aid in BPA's fulfillment of mitigation and recovery goals outlined in the Biological Opinion of NOAA Fisheries on operation of the FCRPS.	Would meet this purpose to the greatest extent. The modernization and improvement of existing facilities, and construction of certain new facilities, provide the potential for restoration and prevention of extinction of spring/summer chinook. The proposed action would support the recovery goals for operation of the FCRPS.	Would not meet this purpose. Existing facilities would continue to be relied upon to support the conservation and recovery program for the chinook in Northeast Oregon. Current disease risks and other problems, insufficiencies, and limitations associated with the existing situation would continue. Lostine and Imnaha chinook stocks would continue to be incubated and reared away from their natal waters, except for the temporary rearing facility on the Lostine River.
Achieve economic efficiencies by integrating management of fish production programs and facilities.	Would meet this purpose. Implementation of this project supports integration and coordination of LSRCP, BPA, NPCC, NPT, CTUIR, and ODFW hatchery management interests and expenditures.	Coordination and economic efficiency are constrained by the limitations of the existing hatchery facilities to meet LSRCP mitigation goals or the conservation and recovery objectives for ESA-listed species shared by the fishery managers.
Be consistent with pertinent laws, relevant plans and programs and tribal objectives for fishery management and harvest.	Would meet this purpose to the greatest extent, particularly related to mitigation and recovery of ESA-listed species.	Would not be inconsistent with any laws, or relevant plans and programs or tribal objectives, but would not further any objectives contained therein.

Table 2-3. Comparison of Facilities Associated with Proposed Action and No Action Alternative.

Facilities	Proposed Action	No Action Alternative
Number of Sites Involved	<u>5 Sites</u> Lookingglass Hatchery Lostine Adult Collection Facility, including the Lostine Adult Collection Weir Lostine River Hatchery Imnaha Final Rearing Facility Imnaha Satellite Facility	<u>4 Sites</u> Lookingglass Hatchery Lostine Adult Collection Weir, included as part of the Lostine Adult Collection Facility site Lostine Acclimation & Rearing Imnaha Satellite Facility
Approximate Acres Occupied	Lookingglass Hatchery (11) Lostine Adult Collection Weir Lostine Adult Collection Facility, including the Lostine Adult Collection Weir (3) Lostine River Hatchery (6) Imnaha Final Rearing Facility (10) Imnaha Satellite Facility (6)	Lookingglass Hatchery (11) Lostine Adult Collection Weir, included as part of the Lostine Adult Collection Facility site (1) Lostine Acclimation & Rearing (1) Imnaha Satellite Facility (6)
Number of Sites Improved	<u>2 Sites</u> Lookingglass Hatchery Imnaha Satellite Facility	None
Number of New Sites	<u>3 Sites</u> Lostine Adult Collection Facility Lostine River Hatchery Imnaha Final Rearing Facility	None
Number of Sites Incorporated into Others	<u>1 Site</u> Lostine Acclimation & Rearing, functions moved to Lostine River Hatchery	None
Number of Sites Unchanged	<u>1 Site</u> Lostine Adult Collection Weir, included as part of the Lostine Adult Collection Facility site	<u>All 4 Sites</u> (minor modifications and improvements likely over time)

Table 2-4. Summary of Environmental Consequences of Alternatives.

Environmental Resource	Proposed Action	No Action Alternative
3.2 Fisheries <ul style="list-style-type: none"> Targeted spring/summer chinook 	<p>Site disturbances and channel alterations would create minor localized impacts that would not affect species population viability. Water withdrawals during operation of facilities would reduce habitat in the immediate reach of each diversion, but would not affect species population viability. No impacts to individuals or populations are expected from discharges at proposed facilities. Individuals and the population would benefit from improved passage as well as adult attraction and collection facilities. The population would benefit from improved broodstock collection and holding facilities. Incubation and rearing practices resulting from the proposed facilities would increase population viability and benefit the species in the long-term. Fish health maintenance activities would benefit individuals and the population by reducing disease potential.</p>	<p>Risks to hatchery fish production needed to maintain population viability would increase in the long-term because of the inadequacy of current facilities.</p>
<ul style="list-style-type: none"> Non-targeted chinook 	<p>Site disturbances and channel alterations would create minor localized impacts that would not affect species population viability. Water withdrawals during operation of facilities would reduce habitat in the immediate reach of each diversion, but would not affect species population viability. No impacts to individuals or populations are expected from discharges at proposed facilities. Some individuals may experience short-term stress by installation of weirs, ladders and traps within the Lostine River. Improved upstream and downstream passage in both subbasins would benefit populations. Broodstock collection and maintenance are not expected to impact non-targeted chinook population viability. Incubation and rearing practices at the proposed facilities would have no impact on non-targeted chinook. Fish health maintenance activities would benefit individuals and the population by reducing disease potential.</p>	<p>No change.</p>

Environmental Resource	Proposed Action	No Action Alternative
<ul style="list-style-type: none"> Other salmonids 	<p>Site disturbances and channel alterations would create minor localized impacts that would not affect species population viability. Water withdrawals during operation of facilities would reduce habitat in the immediate reach of each diversion, but would not affect species viability. No impacts to individuals or populations are expected from discharges at proposed facilities. Some individuals may experience short-term stress by installation of weirs, ladders and traps within the Lostine River. Improved upstream and downstream passage in both subbasins would benefit populations. Broodstock collection and maintenance are not expected to impact population viability of other salmonids. Incubation and rearing practices at the proposed facilities would have no impact on other salmonids. Fish health maintenance activities would benefit individuals and the population by reducing disease potential.</p>	No change.
<ul style="list-style-type: none"> Non-salmonids 	<p>Site disturbances and channel alterations would create minor localized impacts that would not affect species viability. Water withdrawals during operation of facilities would reduce habitat in the immediate reach of each diversion, but would not affect species viability. No impacts to individuals or populations are expected from discharges at proposed facilities. Some individuals may experience short-term stress by installation of weirs, ladders and traps within the Lostine River. Improved upstream and downstream passage in both subbasins would benefit populations. Broodstock collection and maintenance are not expected to impact population viability. Incubation and rearing practices at the proposed facilities would have no impact on non-salmonids. Fish health maintenance activities would have no impact on non-salmonids.</p>	No change.

Environmental Resource	Proposed Action	No Action Alternative
3.3 Wildlife <ul style="list-style-type: none"> • ESA species • Other species 	<p>No state or federally listed species are known to nest or breed at project sites. Bald eagles roosts or potential roosts have been documented at or near all sites except ISF. Tree removal at LRH, LACF, and IFRF may reduce the number of potential roost sites.</p> <p>Temporary displacement during construction activities (noise, presence of humans) would be the primary consequence to big game and other wildlife species that use project sites.</p>	<p>No change.</p> <p>No change.</p>
3.4 Plants and Wetlands <ul style="list-style-type: none"> • ESA species • Other native species • Non-native species • Wetlands 	<p>No state or federally listed plant species are known to occur at any project sites.</p> <p>Varying amounts of native vegetation would be disturbed or displaced by facility structures. All sites would be replanted with native species. Some loss of riparian habitat is anticipated at LACF, LRH and IFRF. Improved quality of riparian habitat is expected at IFRF with exclusion of cattle from the site.</p> <p>All facilities would be maintained to discourage non-native, invasive and weed species.</p> <p>LACF and LRH – Net loss of minor amount of wetlands (less than ½ acre combined). Mitigation – Commitment to conduct formal wetland delineations and to implement compensatory wetland mitigation as warranted in consultation with regulatory authorities.</p>	<p>No change.</p> <p>No change.</p> <p>No change.</p> <p>No change.</p>
3.5 Geology <ul style="list-style-type: none"> • Approximate acres temporarily disturbed and permanently altered • Slope/bank stability • Erosion 	<p>LGH – < 1 acre within existing facility (total existing facility about 11 acres).</p> <p>LACF – 3 acres (total site about 3 acres).</p> <p>LRH – 5 acres temporarily, 3 acres permanently, altered (total site about 6 acres).</p> <p>IFRF – 6 acres temporarily, 3 acres permanently, altered (10 acre lease, about 6 acres “occupied”).</p> <p>ISF – < 1 acre within existing facility (total existing facility about 6 acres).</p> <p>Stability unchanged.</p> <p>Short-term, localized erosion during construction.</p>	<p>LGH – No change.</p> <p>LACF – No change.</p> <p>LRH – No change.</p> <p>IFRF – No change.</p> <p>ISF – No change.</p> <p>Stability unchanged.</p> <p>Erosion potential unchanged.</p>

Environmental Resource	Proposed Action	No Action Alternative
3.6 Hydrology <ul style="list-style-type: none"> Water quality Water quantity Flow restrictions / floodplains 	<p>Localized, temporary, construction-related runoff and sedimentation within applicable standards.</p> <p>LRH – occasional short-term reduced flows along hatchery reach in extremely dry or cold periods (up to 50-60% reduction during extreme low flows; during those times, river and well water would be pumped back to the intake location). IFRF – similar to LRH, but shorter duration and extent; up to 50% reduction along the hatchery reach during extremely low flow periods. ISF – similar to LRH, but shorter duration and extent; minor flow regime alteration during extremely low flow periods.</p> <p>LACF, LRH, IFRF - localized flow restriction, concentration, and scouring where new components are installed; slight improvement with new bridge abutments at IFRF and new weir at ISF.</p>	<p>Water quality unchanged.</p> <p>Water quantity unchanged.</p> <p>Flows unchanged.</p>
3.7 Wild and Scenic Rivers <ul style="list-style-type: none"> Imnaha River Lostine River Grande Ronde River 	<p>In-stream structures at ISF and IFRF would slightly constrict river flow and decrease vegetation; slight improvement with new bridge abutments at IFRF and new weir at ISF; fill at IFRF would alter and redirect surface flows during extreme storm events; likely improvement over time to fisheries Outstandingly Remarkable Values (ORVs), as well as lifestyle and recreation ORVs.</p> <p>Not likely to invade area or unreasonably diminish values of Wild and Scenic designation.</p> <p>Not likely to invade area or unreasonably diminish values of Wild and Scenic designation.</p>	<p>No change to Imnaha flow conditions; forego slightly improved replacement structures at IFRF and ISF; forego enhancement to fisheries ORV and related recreation and lifestyle ORVs.</p> <p>No change.</p> <p>No change.</p>
3.8 Cultural Resources	<p>No effect. If evidence of cultural materials is found later, work or activity would be halted until the site could be assessed.</p>	<p>No effect.</p>
3.9 Aesthetics (Visual Quality)	<p>LGH – no effect on existing visual character. LACF – limited effect on overall visual character. LRH – limited effect, visible to nearby residents. IFRF – limited effect, brief views from Road 551. ISF – limited effect on overall visual character.</p>	<p>LGH – No change. LACF – No change. LRH – No change. IFRF – No change. ISF – No change.</p>

Environmental Resource	Proposed Action	No Action Alternative
3.10 Land Use, Recreation and Transportation <ul style="list-style-type: none"> Land Use Recreation Transportation 	<p>Facilities consistent with local zoning as applicable, permitted outright or as conditional use; ISF on Forest Service land would require reissuing the special use permit.</p> <p>No effect on recreation, except possible long-term benefit if chinook stocks recover to enhance viewing and fishing.</p> <p>Short-term traffic increase during construction.</p> <p>LACF – improve trout farm bridge and parking.</p> <p>LRH – pave Granger Road.</p> <p>IFRF – construct turning lane on Road 551.</p>	<p>No change.</p> <p>No change.</p> <p>No change.</p>
3.11 Socioeconomics	No change to human population; minor increase to employment, especially during construction; and some benefit to local economy if chinook recover and stimulate recreation or fishing.	No change; potential for some adverse effect on local economy if salmon stocks continue to decline.
3.12 Air Quality	Short-term increase in particulates during construction; no long-term effect.	No change.
3.13 Noise	<p>LGH – temporary increase in area noise levels during construction; long-term potential to decrease noise at facility with new buildings and equipment.</p> <p>LACF – temporary increase in area noise levels during construction.</p> <p>LRH – temporary increase in area noise levels during construction; long-term noise associated with traffic to the facility and other activities, and an additional residence.</p> <p>IFRF – temporary increase in area noise levels during construction.</p> <p>ISF – temporary increase in area noise levels during construction; long-term potential to decrease noise in the area by replacing the existing diesel generator with powerline.</p>	No change at any of the sites.
3.14 Public Health and Safety	Potential minor increased demand for public services (fire, hospital, etc.) and increased traffic during construction.	No change from current situation.

***Proposed Action**

LGH = Lookingglass Hatchery
 LRH = Lostine River Hatchery
 ISF = Imnaha Satellite Facility

LACF = Lostine Adult Collection Facility
 IFRF = Imnaha Final Rearing Facility